

**REMARKS**

Reconsideration of this application, as presently amended, is respectfully requested.

Claims 1-4, 7, 8, 14 and 17-20 are pending in this application. Claims 1-4, 7, 8 and 17-20 stand rejected.

**Claim Rejections - 35 U.S.C. §103**

Claims 1 – 4, 7, 8, 14 and 17 – 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over **Dunstan** (USP 5,572,110, previously cited) in view of **Koenck** (USP 4,455,523, previously cited) and **Chalasani et al.** (U.S. Patent No. 5,969,436, previously cited). For the reasons set forth in detail below, this rejection, to the extent it is considered to apply to the amended claims, is respectfully traversed.

First, the Examiner's position that the recitation "An electric device *of an electric vehicle...*" should not be given patentable weight will be addressed (see Office Action, page 3, Item 2). The Examiner has treated the phrase "of an electric vehicle" as a statement of intended use because there is no correlation between the recitation "electric vehicle" in the preamble and the elements in the body of the claim.

Accordingly, claim 1 has been amended to relate the language in the preamble to the body of the claim. Specifically, claim 1 has been amended to recite "a rechargeable secondary battery to provide power to the electric vehicle..."

The remarks regarding the prior art references set forth in the previous responses are hereby incorporated by reference.

Claim 1 has been amended to clarify the feature of the invention wherein a user is made aware how long the charging of the battery will take by determining and displaying a charge completion time or a remaining time for charging *based on information of the measuring means and/or the memory and the specified time*. Support for this amendment is provided, e.g., in Fig. 4, step B5 and in Fig. 7, step E3.

**Dunstan** discloses *setting* a custom charge time (e.g., 30 minutes, 60 minutes). In other words, the custom charge time is preset and not *determined* based on battery information. Further, as discussed in the response to the first Office action dated September 8, 2004, the clock 59 of **Dunstan** functions to measure elapsed time and generate interrupts. **Dunstan** does not disclose or suggest *determining and displaying a charge completion time or a remaining time for charging based on both a state of the battery and a specified time based on which charging is started*.

Furthermore, **Chalasani et al.** simply teach that intermittent charging can be performed at a *preset* time of day, and that charging occurs for a *preset* time, regardless of the state of the battery. **Chalasani et al.** do not disclose or suggest determining and displaying a charge completion time or a remaining time for charging based on a state of the battery and a specified time based on which charging is started.

The **Koenck** reference was cited to generally teach a display, but does not alleviate the deficiencies of **Dunstan** and **Chalasani et al.** noted above.

Accordingly, it is respectfully submitted that the combination of **Dunstan, Chalasani et al.** and **Koenck** does not result in the presently claimed invention. Reconsideration and withdrawal of the rejection under §103 are respectfully requested for at least these reasons.

Moreover, it is respectfully submitted that the combination of references is improper under §103. More particularly, the Examiner recognizes that **Dunstan** does not disclose or suggest a time setting function for setting a specified time based on which charging is started. The Examiner relies on **Chalasani et al.** to teach charging of a battery at specified times of day (see Office Action, pages 3 and 4, Item 4). (Note, the **Koenck** reference is cited simply to teach the display function.)

The Examiner further asserts that “One of ordinary skill in the art, having both references would thus be taught to charge battery 34 of Dunstan selectively during certain time periods, as done in Chalasani et al., to automate the charging process. Whether a charge completion time or charge starting time is used as the time input would be an obvious choice for one skilled in the art for accomplishing the same purpose of charging the battery during a selected time period” (Office Action, page 4, lines 1-5).

It is respectfully submitted that there is no motivation or incentive to combine the **Dunstan** and **Chalasani et al.** references, as required under §103, and therefore the Examiner has not established a *prima facie* case of obviousness.

The **Dunstan** reference discloses a device wherein a user can select how long a charging operation will be performed (i.e., a time length of recharge). Column 14, lines 61–62 of **Dunstan** states, “*Alternatively, the user can select a custom charge time.*”

Moreover, as disclosed in column 13, lines 45 - 48 of **Dunstan**, the Dunstan device uses a Level 2 smart battery charger wherein the charging algorithm in the smart battery *may periodically adjust the smart battery charger's output to meet its needs*. However, the operation of the Level 2 smart battery charger is well known. Contrary to the Examiner's assertion, the Level 2 smart battery charger responds to *charge voltage* and *charge current messages* sent to it by the smart battery 34 *to start a charging output* (see, e.g., col. 13, lines 41-43). Further, it is noted that periodic adjustment of the smart battery charger's output is part of an ongoing charging operation and *not the start of a charging operation*.

Thus, as recognized by the Examiner, the smart battery charger disclosed by **Dunstan** is silent regarding setting a time based on which charging is started.

**Chalasani et al.** teach a control circuit 250 that selectively couples a battery 220 to a source of electrical power 205 to charge the battery 220 based on ambient temperature *or* time of day. Further, **Chalasani et al.** teach that the battery 220 is disconnected from the load when the battery has discharged below its low voltage threshold (see, e.g., col. 5, lines 2-4). However, **Chalasani et al.** do not teach or suggest that charging is started based on the specified time *and* the measured state of the battery 220 is involved in the charging process. **Chalasani et al.** simply teach that intermittent charging can be performed at a preset time of day, and that charging occurs for a preset time, regardless of the state of the battery.

Thus, **Dunstan et al.** teaches charging a battery based on measured information (e.g., current, voltage) related to the state of the battery, while **Chalasani et al.** teach charging a battery based on a set time. However, there is no teaching or suggestion in either of the references of

combining these teachings to result in a battery wherein charging is performed based on information regarding the state of the battery (whether stored in memory or from the measuring means) *and* the specified time.

The motivation for combining the prior art references to arrive at the claimed invention must stem from some teaching suggestion or implication in the prior art as a whole or knowledge generally available to one of ordinary skill in the art. *Uniroyal v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051, 5 USPQ 2d 1434, 1438 (fed. Cir.), *Cert. denied*, 488 U.S. 25 (1988).

The motivation for combining the **Chalasani et al.** reference with the **Dunstan** reference provided in the Office Action is “*to automate the charging process*” (Office Action, page 4, line 3). However, the respective charging processes in each of **Dunstan** and **Chalasani et al.** are already automated, but automated based on different criterion. Specifically, the **Dunstan** charging process is automated based on detected battery current and voltage, while the **Chalasani et al.** charging process is automated based on a set time or ambient temperature.

However, there is no teaching, suggestion or incentive in the references to modify either of the references to provide the type of automated battery charging provided by the presently claimed invention, wherein charging is started based on the specified time *and* the measured state of the battery. The only teaching of this feature is provided by applicants own teachings.

It is respectfully submitted that in view of the lack of incentive or motivation for combining the various features of the references under §103, the combination is the result of improper hindsight reconstruction of the invention based on applicants own teachings.

In view of the above remarks, it is respectfully submitted that each of claims 1-4, 7, 8, 14 and 17-20 patentably distinguish over the cited prior art and therefore define allowable subject matter. Reconsideration and withdrawal of the rejections under §103 are respectfully requested.

**CONCLUSION**

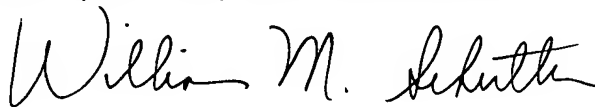
In view of the foregoing amendments and accompanying remarks, it is submitted that all pending claims are in condition for allowance. A prompt and favorable reconsideration of the rejection and an indication of allowability of all pending claims are earnestly solicited.

If the Examiner believes that there are issues remaining to be resolved in this application, the Examiner is invited to contact the undersigned attorney at the telephone number indicated below to arrange for an interview to expedite and complete prosecution of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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